

CLAIMS

What is claimed is:

- 1 1. An apparatus, comprising:
 - 2 a) a framer;
 - 3 b) a 2:1 multiplexer to receive an inbound signal from the framer;
 - 4 c) a first mutliplexer to receive at least one signal from another
5 framer, the 2:1 multiplexer having an input coupled to an output from the first
6 multiplexer; and
 - 7 d) a second multiplexer that receives at least one signal from the
8 another framer, the second multiplexer having an output coupled to an input of
9 the framer for an outbound signal.
- 1 2. The apparatus of claim 1 wherein the framer is a SONET framer.
- 1 3. The apparatus of claim 2 wherein the signal corresponds to an STS-1
2 signal.
- 1 4. The apparatus of claim 1 wherein the framer has n inbound signals and n
2 outbound signals.
- 1 5. The apparatus of claim 4 wherein n is equal to 3.
- 1 6. The apparatus of claim 4 wherein n is equal to 12.
- 1 7. The apparatus of claim 4 wherein n is equal to 48.

- 1 8. The apparatus of claim 4 wherein n is equal to 192.
- 1 9. The apparatus of claim 1 wherein the framer is an SDH framer.
- 1 10. The apparatus of claim 9 wherein the signal is an STS-1 signal.
- 1 11. A networking system having a first framer logic unit and a second framer
2 logic unit, each of the framer logic units further comprising:
- 3 a) a framer;
- 4 b) a 2:1 multiplexer to receive an inbound signal from the framer;
- 5 c) a first mutliplexer to receive at least one signal from the other
6 framer logic unit, the 2:1 multiplexer having an input coupled to an output from
7 the first multiplexer; and
- 8 d) a second multiplexer to receive at least one signal from the other
9 framer logic unit, the second multiplexer having an output coupled to an input
10 of the framer for an outbound signal.
- 1 12. The apparatus of claim 11 wherein the framer is a SONET framer.
- 1 13. The apparatus of claim 12 wherein the signal corresponds to an STS-1
2 signal.
- 1 14. The apparatus of claim 11 wherein the framer has n inbound signals and n
2 outbound signals.
- 1 15. The apparatus of claim 14 wherein n is equal to 3.

- 1 16. The apparatus of claim 14 wherein n is equal to 12.
- 1 17. The apparatus of claim 14 wherein n is equal to 48.
- 1 18. The apparatus of claim 14 wherein n is equal to 192.
- 1 19. The apparatus of claim 11 wherein the framer is an SDH framer.
- 1 20. The apparatus of claim 19 wherein the signal is an STS-1 signal.
- 2 21. The apparatus of claim 11 wherein each of the framer logic units
3 corresponds to a line interface card.
- 1 22. The apparatus of claim 21 wherein the first and second framer logic units
2 are coupled together through a backplane.
- 1 23. A method comprising:
2 a 2:1 multiplexer receiving a first output signal; and
3 changing selection of the 2:1 multiplexer that receives the first output
4 signal from a first framer and a second output signal from a second framer, the
5 first output signal being the same as the second output signal.
- 1 24. The method of claim 23 wherein the changing occurs upon detection of a
2 failure of a networking line, the networking line coupled to one of the first and
3 second framers.

1 25. The method of claim 24 wherein the second output signal from the second
2 framer passes through a backplane within a networking system after
3 presentation by the second framer and prior to reception by the 2:1 multiplexer.

1 26. An apparatus, comprising:

2 a) a framer;

3 b) a 2:1 multiplexer that receives an inbound signal from the framer;

4 c) a first multiplexer that receives at least one signal from another
5 framer, the 2:1 multiplexer having an input coupled to an output from the first
6 multiplexer;

7 d) a second multiplexer that receives at least one signal from the
8 another framer, the second multiplexer having an output coupled to an input of
9 the framer for an outbound signal; and

10 e) a third multiplexer that receives at least one signal from the another
11 framer, the third multiplexer having an output coupled to a routing or switching
12 engine that forwards packets received from the third multiplexer output onto
13 another signal.

1 27. The apparatus of claim 26 wherein the framer is a SONET framer.

1 28. The apparatus of claim 27 wherein the signal corresponds to an STS-1
2 signal.

1 29. The apparatus of claim 26 wherein the framer has n inbound signals and n
2 outbound signals.

1 30. The apparatus of claim 29 wherein n is equal to 3.

1 31. The apparatus of claim 29 wherein n is equal to 12.

1 32. The apparatus of claim 29 wherein n is equal to 48.

1 33. The apparatus of claim 29 wherein n is equal to 192.

1 34. The apparatus of claim 26 wherein the framer is an SDH framer.

1 35. The apparatus of claim 34 wherein the signal is an STS-1 signal.